

Clinical Paper
Orthognathic Surgery

A longitudinal study of changes in psychosocial well-being during orthognathic treatment

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Abstract. The aim was to evaluate changes in the psychosocial well-being of orthognathic surgery patients ($n = 22$) during treatment and to compare results with those of adults not requiring orthognathic treatment ($n = 22$). Patient data were collected before treatment (T0), after the first orthodontic examination (T1), three times during treatment (T2–T4), and 1 year after surgery (T5). In this article, only data corresponding to patient stage T5 are reported for the control subjects. Participants filled in a structured diary and the modified version of the Secord and Jourard body image questionnaire, the Orthognathic Quality of Life Questionnaire, the Rosenberg Self-Esteem Scale, and the Acceptance and Action Questionnaire II. Moreover, patients filled in the Symptom Checklist-90. After the placement of orthodontic appliances (T2), orthognathic quality of life, self-esteem, and psychological flexibility were lower and psychiatric symptoms increased. Improvements were observed from T2 to T5 in orthognathic quality of life, body image, self-esteem, psychological flexibility, and psychiatric symptoms. Treatment resulted in improvements from T0 to T5 in orthognathic quality of life, body image, and psychiatric symptoms. At T5, patient psychosocial well-being was comparable to or even better than that of control subjects. Orthognathic treatment seems to support psychological well-being, but the range of individual variation is wide.

Key words: orthognathic; psychosocial; quality of life; well-being.

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According to previous studies, the main motives of patients seeking orthognathic treatment are improvement in self-confidence, appearance, and oral function¹. More specifically, these motives may include recurrent headaches, facial pain, temporomandibular joint problems, difficulties in biting and chewing, and dissat-

isfaction with facial appearance, among others^{2,3}.

Preoperatively, orthognathic patients suffer from psychosocial problems, such as bullying^{4,5}. They also have a lower condition-specific quality of life than those with only mild malocclusion⁶ or adults with no need for orthodontic treat-

ment⁴. Results regarding preoperative psychiatric symptoms^{4,7,8}, self-esteem, and self-confidence^{4–6} vary.

Postoperatively, orthognathic treatment improves the patient's orthognathic quality of life^{9–11}, oral health-related quality of life^{12–15}, and aspects of generic quality of life⁷. However, in a recent study

by Brunault et al.¹⁶, quality of life remained lower than that of the general population, while in a study by Kilinc and Ertas¹⁷, treatment resulted in a quality of life similar to that of participants without dentofacial deformities. Depressive symptoms seem to decrease from the pre-surgical level at both 6 months⁸ and 12 months after surgery¹⁶. However, no change in anxiety symptoms is observed 12 months post-surgery¹⁶. The number of patients who continue to suffer from significant levels of depressive symptoms after surgery is high⁸.

During the course of orthognathic treatment, it is plausible that psychosocial well-being changes as different stages of treatment begin and end, and also because treatment takes a long time. In the beginning, the impact of fixed orthodontic appliances on oral health-related quality of life is negative, but quality of life returns to pre-treatment levels after the completion of treatment¹⁸. However, self-esteem has been found to change differently: the beginning of treatment does not affect self-esteem, while post-treatment it is higher than at baseline¹⁸.

In a systematic review focusing on quality of life¹⁹, 10 out of 21 studies reported data at only one time point. Three prospective studies with controls were included; they reported data on two occasions. A single study focusing on postoperative changes collected data at three time points following surgery⁹. Thus, more knowledge on the longitudinal changes in patient well-being is needed, as most studies so far have collected data using cross-sectional designs or at only a few data collection points.

According to previously published results⁴, before beginning orthognathic treatment, the patient's body image, along with their orthognathic quality of life in all dimensions other than social aspects, is lower, while self-esteem and psychological flexibility are equal to those of controls. The aim of the current study was to further elucidate changes in psychosocial well-being before, during, and after orthognathic treatment and to compare patient well-being to that of control subjects who do not require orthognathic treatment.

Materials and methods

This prospective study recruited patients referred to two university hospitals for the evaluation of orthognathic treatment needs. Patients with cleft lip or palate, syndromes affecting the craniofacial anatomy, and those whose Finnish language skills did not allow them to complete the

questionnaires were excluded from the study. The sample sizes at the different time points are presented in Fig. 1. Sixty patients participated at T0. Thirty-eight patients did not complete every stage of the study, leaving a final sample of 22 patients for whom data were available for at least stages T0 and T5. Sixteen were female and six were male, and their mean age was 36 years (range 18–54 years).

Before treatment, the main complaints reported by the patients were gingival trauma ($n = 8$), headache ($n = 6$), masticatory problems ($n = 5$), sleep apnoea ($n = 4$), and unsatisfactory dental appearance ($n = 4$). Orthognathic treatment was conducted in a conventional manner, including pre-surgical orthodontics, surgery, and post-surgical orthodontics. The most frequent procedure was a bilateral sagittal split osteotomy (59%), followed by bimaxillary surgery (27%) and maxillary surgery (Le Fort I/three-piece maxillary surgery; 14%). The duration of treatment varied from 11 to 47 months (mean 29 months). Post-treatment, three patients experienced symptoms in the temporomandibular joints and one patient had decreased lower lip sensitivity.

The control group consisted of university students attending a dental examination. At the beginning of the study, 29 students participated. Seven dropped out during the study, leaving a control group of 22 subjects. All 22 were female, and their mean age was 25 years (range 19–49 years).

Patient data were collected at six stages (Table 1): before the beginning of treat-

ment (T0), after the first orthodontic examination (T1), three times during treatment (T2–T4), and 1 year after surgery (T5). From T0 to T1, the patients were on a waiting list pending the beginning of treatment. This time period lasted a mean 8 months (range 2–14 months). The mean duration from the first clinical examination (T1) by the treating orthodontist to the day of the surgical operation was 23 months (range 6–41 months). At T5, 1 year after surgery, orthodontic appliances had been removed from all but one of the patients.

Data were collected from the control subjects at three time points: (1) at the beginning of the study (corresponding to stage T0), (2) 2 years later (corresponding to T4), and (3) 4 years after T0 (corresponding to T5). Only control subject data corresponding to T5 are reported in this study.

All participants filled in a structured diary on two separate days, four times a day, at every time point. The diary was developed by the authors and included questions about daily activities, emotions, negative and positive attention, bullying, and name-calling⁴. In addition, the patients filled in five questionnaires and the controls filled in four questionnaires: (1) A modified version of the Secord and Jourard body image questionnaire, which includes 20 items and assesses the participant's satisfaction with different body parts^{20,21}. (2) The Orthognathic Quality of Life Questionnaire²² (OQLQ), which consists of 22 items distributed across subscales on oral function, facial aesthetics, awareness of dentofacial aesthetics, and social aspects of dentofacial deformity. Items are answered on a five-point scale (does not bother me at all = 0, then 'bothers me a little' = 1 to 'bothers me a lot' = 4). Higher scores indicate lower orthognathic quality of life (the total score ranges from 0 to 88). The reliabilities of the subscales range from 0.83 to 0.93. (3) The Rosenberg Self-Esteem Scale²³ (RSES), which is a 10-item questionnaire with responses made on a four-point Likert scale ('strongly disagree' to 'strongly agree'), with higher scores indicating higher self-esteem (total score range 0–30). The reliability of the RSES was found to be 0.86 in a Finnish population²⁴. (4) The Acceptance and Action Questionnaire II²⁵ (AAQII), which is a seven-item questionnaire for the assessment of psychological flexibility (i.e., the ability to accept and experience current feelings and emotions)²⁶. Items are answered on a seven-point scale ('never true' = 1 to 'always true' = 7). Higher

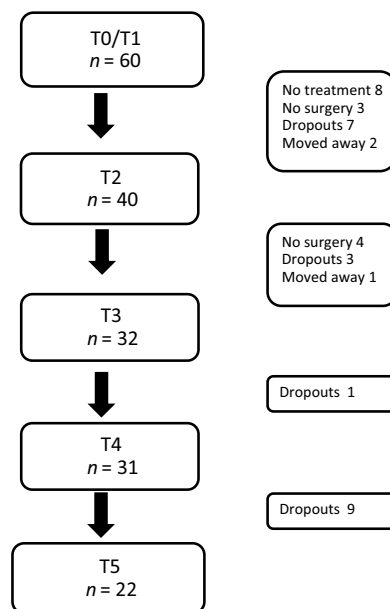


Fig. 1. The patient sample size at the different stages of the study.

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